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FIG. 1

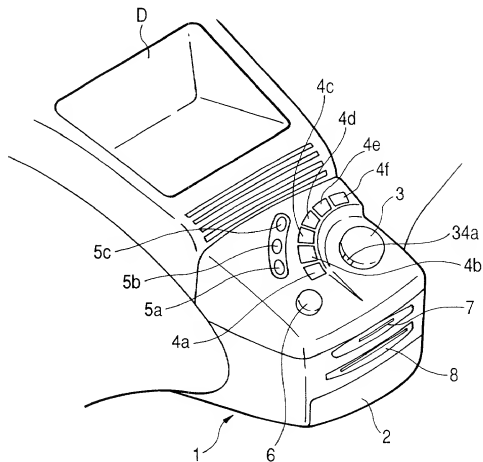
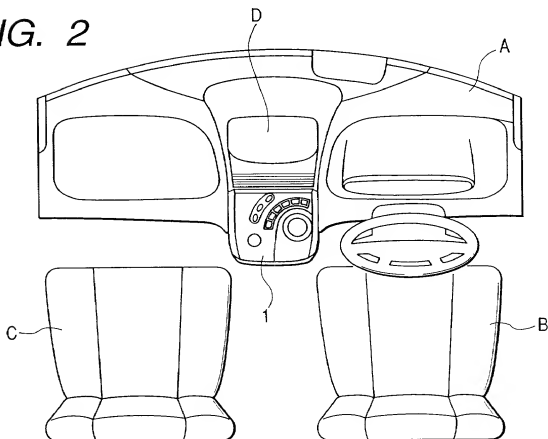
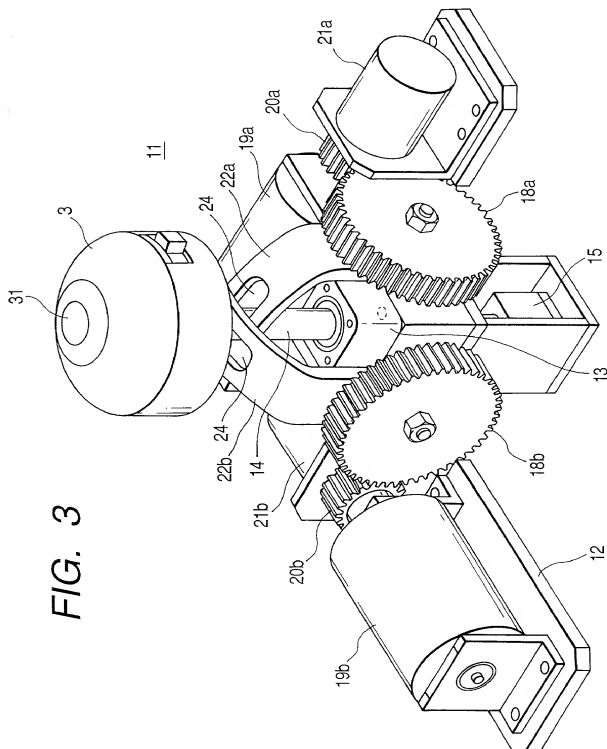


FIG. 2





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FIG. 4

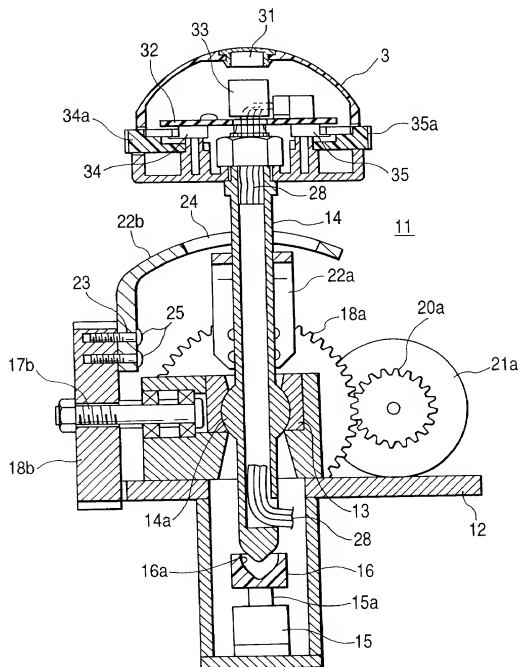
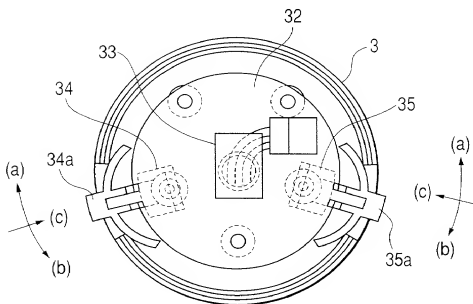


FIG. 6



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FIG. 7A

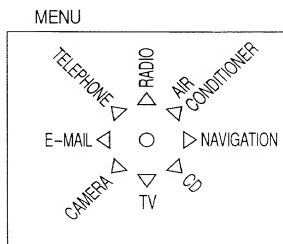


FIG. 7B

MOVABLE DIRECTIONS OF
MANUAL MANIPULATOR

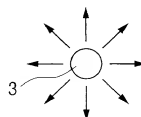


FIG. 8A

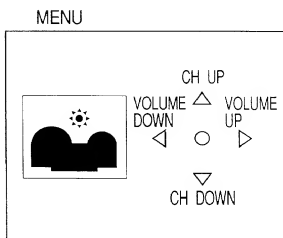
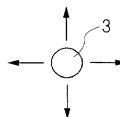


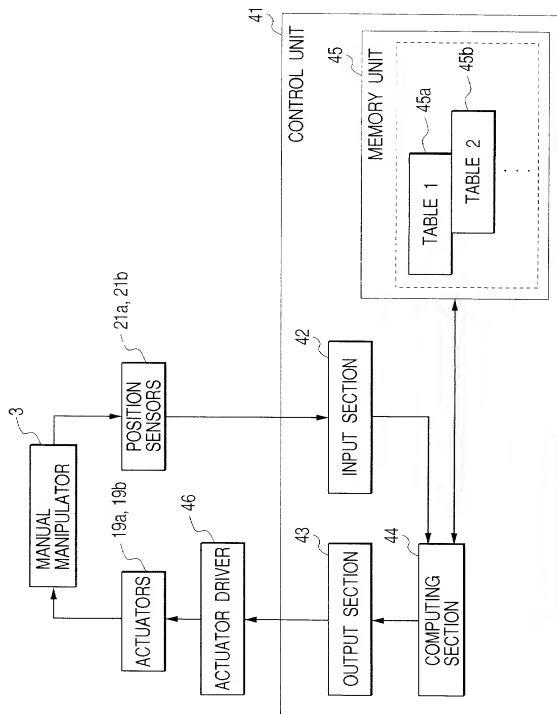
FIG. 8B

MOVABLE DIRECTIONS OF
MANUAL MANIPULATOR



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FIG. 9



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FIG. 10

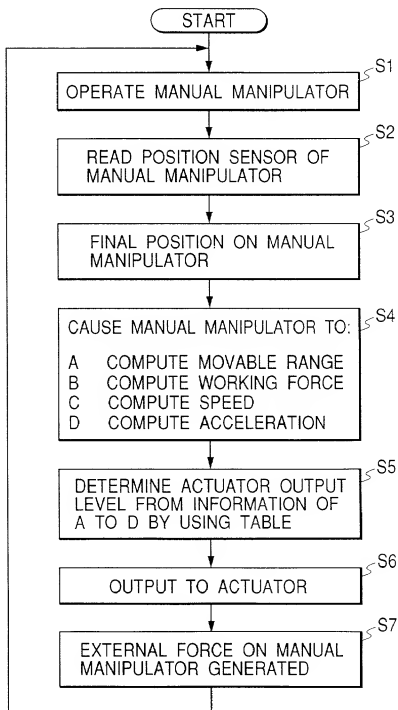
Y DIRECTION
 ↑
 +

X0	X1	X2	X3	X4	X5	X6	X7	
+1 -1	+1 0	+1 0	0 0	0 0	-1 0	-1 0	-1 -1	Y7
0 -1	+1 -1	+1 0	0 0	0 0	-1 0	-1 -1	0 -1	Y6
0 -1	0 -1	+1 -1	0 0	0 0	-1 -1	0 -1	0 -1	Y5
0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	Y4
0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	Y3
0 +1	0 +1	+1 +1	0 0	0 0	-1 +1	0 +1	0 +1	Y2
0 +1	+1 +1	+1 0	0 0	0 0	-1 0	-1 +1	0 +1	Y1
+1 +1	+1 0	+1 0	0 0	0 0	-1 0	-1 0	-1 +1	Y0

— → +
 X DIRECTION

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FIG. 11



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FIG. 12

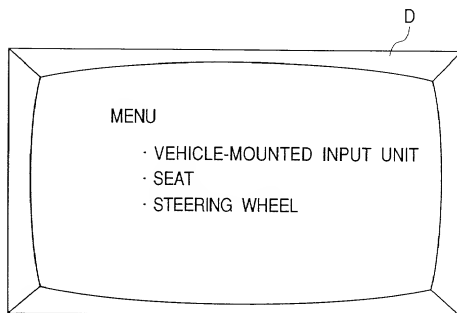
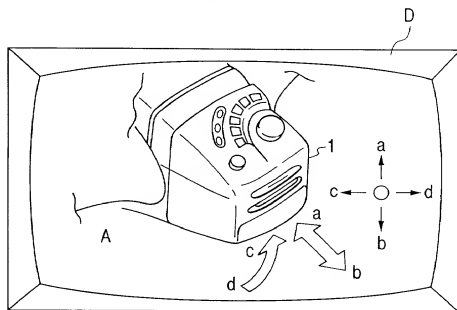


FIG. 13





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FIG. 15
PRIOR ART

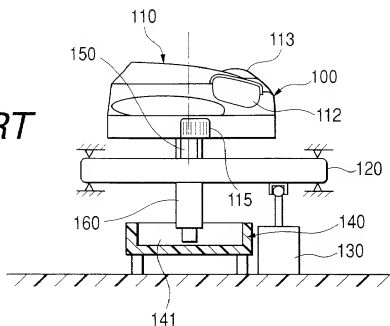


FIG. 16
PRIOR ART

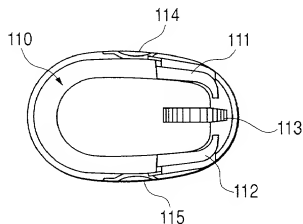


FIG. 17
PRIOR ART

